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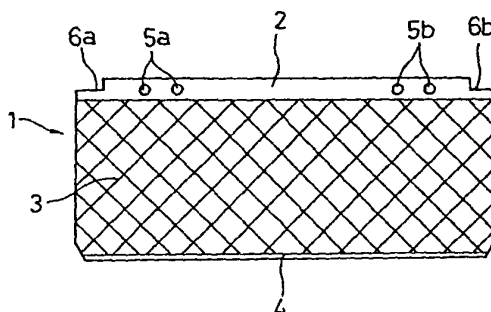
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(54) **Electrode and assembling method thereof**

(57) A rectangular electrode plate (1) including a core metal sheet and a mixture paste coated thereon has a lead (2) on one long side edge thereof where no mixture is coated, and a mixture non-coated part (4) on the other side edge thereof. Positioning holes (5a, 5b) are punched only in the lead so that the stress exerted

when punching the holes will not cause the mixture paste to fall off. Stacked electrode plates are accommodated within a magazine (22A) with a certain clearance (28) between the three side edges of the electrodes other than the lead and the inner surface of the magazine, and fed one by one to be assembled into an electrode plate group to form a battery.

*Fig. 1*



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## EUROPEAN SEARCH REPORT

Application Number  
EP 01 30 3362

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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A	---	2,3,9-12	H01M4/24 H01M4/14
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P,A	---	2,3	
A	GB 2 119 159 A (CHLORIDE GROUP PLC) 9 November 1983 (1983-11-09) * figure 1 * * page 2, line 16 - line 21 *	1-3	
X	US 3 966 497 A (HONER HAROLD NICKOLAS) 29 June 1976 (1976-06-29) * column 2, line 58 - line 64 * * column 3, line 31 - line 56 * * figure 4 *	4-6	TECHNICAL FIELDS SEARCHED (Int.Cl.7) H01M
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 July 2002	Examiner Métais, S
CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1502 01/92 (P04/01)



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### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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# EUROPEAN SEARCH REPORT

Application Number  
EP 01 30 3362

DOCUMENTS CONSIDERED TO BE RELEVANT			
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Place of search: <b>THE HAGUE</b>		Date of completion of the search: <b>23 July 2002</b>	Examiner: <b>Métais, S</b>
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

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LACK OF UNITY OF INVENTION  
SHEET B

Application Number  
EP 01 30 3362

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1-3

A rectangular electrode for a battery, comprising a mixture coated part including a core material and a mixture coated thereon and occupying substantially an entire surface of the electrode; a lead part on one side edge of the electrode where no mixture is coated; and a positioning hole formed only in the lead part.

2. Claims: 4-6

A rectangular electrode for a battery, comprising a mixture coated part including a core material and a mixture coated thereon; a lead part on one side edge of the electrode where no mixture is coated; and a mixture non-coated part on one side edge of the electrode opposite from the lead part.

3. Claims: 7-12

A method for assembling electrodes into a group of electrodes with a predetermined number of electrodes of opposite polarity to form a battery, comprising : holding a plurality of electrodes of a first polarity in stacked arrangement within a first magazine; holding a plurality of electrodes of a second polarity opposite the first polarity in stacked arrangement within a second magazine; arranging a plurality of first magazines and second magazines in alternate arrangement along a transfer path of a moving assembling jig having a positioning pin thereon; feeding the assembling jig intermittently along the transfer path, stopping at a position opposite either one of the first magazine and the second magazine; and transferring the electrode of the first polarity one by one from the first magazine onto the assembling jig at a halt, positioning of the electrode with respect to the assembling jig being achieved by the positioning pin; and transferring the electrodes of the second polarity one by one from the second magazine onto the assembling jig at a halt, such that the electrodes of the opposite polarity are stacked alternately on the assembling jig.

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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